

# **NOTICE**

**All drawings located at the end of the document.**

**NO FURTHER ACCELERATED ACTION JUSTIFICATION FOR THE  
REACTIVE METAL DESTRUCTION SITE**

**PAC REFERENCE NUMBER: 900-140**

IHSS Reference Number: 140, Operable Unit 2

Unit Name: Hazardous Disposal Site (IAG Name: Reactive Metal Destruction Site)

Approximate Location: N748,500; E2,086,000

Date(s) of Operation or Occurrence

1956 - 1970

Description of Operation or Occurrence

An area in the southeast portion of the 400-acre manufacturing area was used for the destruction and disposal of reactive metals and other chemicals (Figure 1). Metallic lithium was destroyed on the ground in the 1950s and 1960s. The activity was described in 1967 as lithium waste being disposed of in a trench, moistened, and then covered with fill at the southeast corner of the site (DOW 1967). After the reaction, the residues were buried (DOW 1974).

The area was fenced to prevent unauthorized personnel from accessing the area. Signs along the fence indicated that the area was a Hazardous Disposal Site (DOW 1968).

Physical/Chemical Description of Constituents Released

Approximately 400 to 500 pounds of lithium were destroyed and the residues, primarily non-toxic lithium carbonate, were buried (DOW 1974). It is believed that nine bottles of nickel carbonyl and one can of iron carbonyl were disposed of in this area in March 1969 (DOW, 1969). The Operable Unit 2 (OU2) Phase II RCRA Facility Investigation/Remedial Investigation (RFI/RI) report (see below) stated that, in addition to lithium, other elements and compounds that were destroyed at this site included sodium, calcium, magnesium, solvents, and unknown liquids (DOE 1995a).

Responses to Operation or Occurrence

As part of the OU2 Phase II RFI/RI, nine boreholes were drilled to delineate the nature and extent of contamination associated with IHSS 900-140. The samples were analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), metals, pesticides, polychlorinated biphenyls (PCBs), and radionuclides. The analytical data are summarized in the OU2 Phase II RFI/RI report (DOE 1995a).

IHSS 900-140 is surrounded and overlain by IHSS 900-155, the 903 Lip Area. Waste releases at the 903 Pad (IHSS 112) are considered the primary source of radiological

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contamination in surficial soil adjacent to the 903 Pad (903 Lip Area) and extending east of this location (Americium Zone). The contamination was dispersed from the 903 Pad by the action of wind. Radiological contamination of surficial soil throughout the 903 Lip Area and Americium Zone, including IHSS 900-140, was characterized in 1999, and the results are reported in the Site Characterization Report for the 903 Drum Storage Area, 903 Lip Area, and Americium Zone (Kaiser-Hill, 2002). The data indicate that large areas of plutonium and americium contamination in surface soil within the Lip Area and IHSS 900-140 exceed the Action Levels (ALs) for protection of a Wildlife Refuge Worker, as presented in RFCA Attachment 5, June 5, 2003. Surficial radiological contamination at 900-140 will be addressed by soil removal pursuant to Notification 03-07. Soil is to be removed to a depth of 6 inches, or to greater depths as necessary, to achieve the plutonium and americium ALs.

#### Fate of Constituents Released to Environment

IHSS 900-140 has been well characterized through previous investigations. Figures 2 and 3 show the surface and subsurface soil sampling locations. Table 1 summarizes the sample analysis program at IHSS 900-140 based on current available data collected during the previous investigations. As can be seen in Table 1, surface soil and subsurface soil samples were analyzed for metals, radionuclides, VOCs, SVOCs, pesticides and PCBs; however, most surface soil samples were analyzed for only radionuclides because this is the analyte of concern for the 903 Lip Area (IHSS 155) which overlies this IHSS. All of the analytical suites noted above are well represented for subsurface soil samples.

The surface and subsurface soil data are summarized in Tables 2 and 3, respectively. These tables show analytes that were detected above background (see discussion below). In these tables, the following decision rules were applied to the calculation of summary statistics:

1. Data rejected during validation was eliminated from the data set before computing statistics.
2. The maximum value is the highest detected value observed.
3. The average was computed using only data that are above background concentrations.

Figures 4 and 5 show, for surface and subsurface soil, respectively, all the data that were detected above background, and that have a RFCA AL (WRW or Ecological Receptor). The ALs are from RFCA Attachment 5, dated June 5, 2003. Background levels for inorganic constituents for subsurface soil are from the Background Geochemical Characterization Report (DOE 1993). Background values for surface soils and sediments are from Geochemical Characterization of Background Surface Soils: Background Soils Characterization Program (DOE 1995b). All background values used for comparison are the mean background value plus two standard deviations. Any detection of an organic compound is considered an above background level observation.

## **SURFACE SOIL ASSESSMENT**

As shown in Table 2 and Figure 4, surface soil across much of IHSS 900-140 contains plutonium and americium concentrations greater than the WRW ALs (red shaded entries). As IHSS 140 is contained within the 903 Lip Area, this contamination is present in the soil from the historical release and wind dispersal of plutonium and americium from the 903 Pad. Surface soil (and subsurface soil as necessary) with plutonium and americium concentrations greater than the WRW ALs will be removed pursuant to the 903 Lip Area and Americium Zone Interim Measure/Interim Remedial Action Plan. Lead concentrations exceeded the Ecological Receptor AL at PT029A and SS200193; however, in both cases the concentrations were below background for surface soil (Figure 4).

## **APPLICATION OF THE SUBSURFACE SOIL RISK SCREEN**

### **Screen 1 – Are Contaminant of Concern (COC) Concentrations Below Table 3 Wildlife Refuge Worker (WRW) Soil Action Levels?**

Yes (see Table 2 and Figure 5).

### **Screen 2 – Is there potential for subsurface soil to become surface soil?**

Yes. IHSS 900-140 is located in an area subject to erosion in accordance with Figure 1 of RFCA Attachment 5 (DOE et al 2003).

**Evaluate accelerated action in accordance with Section 4.C and 5.C and consider any subsequent screens in the evaluation, as appropriate.**

Not applicable because contaminant concentrations in the subsurface are below WRW ALs (Table 2 and Figure 5).

### **Screen 3 – Does subsurface soil radiological contamination exceed criteria in Section 5.3 and Attachment 14?**

No. ALF Section 5.3(C)(2) requires the removal of soil in the 3-6 foot depth interval that contains plutonium at concentrations that exceed 3 nCi/g with an areal extent of contamination that exceeds 80m<sup>2</sup>. As shown in Table 2 and Figure 5, contaminant concentrations in the subsurface are below WRW ALs.

### **Screen 4 – Is there an environmental pathway and sufficient quantity of COC that would cause exceedance of surface water standards (SWS)?**

No. Contaminant migration via erosion and groundwater are the two possible pathways whereby surface water could become contaminated by IHSS 900-140. Although erosion may be a significant pathway to transport plutonium to Woman Creek surface water, the

plutonium contamination in surface soil at IHSS 900-140 will be addressed by the 903 Lip Area and Americium Zone Interim Measure/Interim Remedial Action.

With respect to the groundwater pathway, shallow groundwater is present at IHSS 900-140, and the groundwater flow is to the southeast. There is considerable chlorinated solvent contamination in the groundwater, some or most of which appears to have originated from the 903 Pad and Trench T-2 (Figure 6) (DOE 2002). Because chlorinated solvents are only at trace concentrations in the subsurface soil at IHSS 900-140, it does not appear the IHSS is a source for groundwater contamination. Regardless, groundwater contamination in this area will be addressed by the Groundwater Plumes Interim Measure/Interim Remedial Action.

### **Screen 5 – Are COC concentrations above Table 3 Action Levels for ecological receptors?**

Yes. The 8.2 – 12-foot sample from borehole 07491 had a lead concentration of 25.8 mg/kg (Figure 5). The Ecological Receptor AL for lead is 25.6 mg/kg. This is the only subsurface sample with an analyte concentration that exceeded an Ecological Receptor AL, and the concentration is virtually indistinguishable from the AL or the background concentration (24.97 mg/kg). Also, the lead AL of 25.6 mg/kg is based on protection of the American Kestrel. Because the American Kestrel, a bird of prey, would not be directly exposed to the subsurface soil, Preliminary Remediation Goals (PRGs) for other ecological receptors were examined<sup>1</sup>. The PRGs for protection of the prairie dog and Preble's Meadow Jumping Mouse (PMJM) are 149 mg/kg and 642 mg/kg, respectively. Because the low concentration of lead relative to these PRGs, it is concluded for this NFAA determination that there is no threat posed to ecological receptors by the IHSS 900-140<sup>2</sup>. The sample is also from a depth that a prairie dog or PMJM is unlikely to burrow.

### **STEWARDSHIP ANALYSIS**

Application of the Subsurface Soil Risk Screen to IHSS 900-140 indicates No Further Accelerated Action (NFAA) is necessary for protection of public health and environment. This conclusion is drawn in light of plutonium contaminated surface soil being addressed by the 903 Lip Area and Americium Zone Interim Measure/Interim Remedial Action. The IHSS does not appear to be a source for the groundwater contamination in the area, and the existing contamination will be addressed by the Groundwater Plumes Interim Measure/Interim Remedial Action. Also, only one subsurface soil sample had a lead concentration that exceeded the Ecological Receptor soil AL, and the concentration was

<sup>1</sup> The AL is the lowest PRG above Site background levels that was calculated for each of the five selected wildlife receptors judged to be representative of species at RFETS: Preble's meadow jumping mouse and black tailed prairie dog (fossorial [burrowing] small mammals), mourning dove (small ground-feeding bird), terrestrial invertebrate (multiple species), and American kestrel (avian predator).

<sup>2</sup> At this time, ecological ALs are not available for all receptors/chemical combinations; however, draft ALs are available for a small subset of chemicals. Screen 5 currently evaluates only this subset. Risk to ecological receptors will be readdressed through the ecological risk assessment portion of the Comprehensive Risk Assessment (CRA).

near background and the AL, and below PRGs for burrowing animals. Accordingly, IHSS-specific stewardship actions do not appear necessary. Nevertheless, both near-term and long-term stewardship actions have been recommended as a best management practice. They are discussed below.

### **Near-Term Management Recommendations**

Near-term recommendations for environmental stewardship include the following:

- Excavation at the sites will continue to be controlled through the Site Soil Disturbance Permit process; and
- Site access and security controls will remain in place pending implementation of long-term controls.

### **Long-Term Stewardship Recommendations**

Based on remaining environmental conditions at IHSS 900-140, no specific long-term stewardship activities are recommended beyond the generally applicable Site requirements that may be imposed on this area in the future, which are dependent upon the final remedy selected. Institutional controls that will be used as appropriate for this area include the following:

- Prohibitions on construction of buildings;
- Restrictions on excavation or other soil disturbance; and
- Prohibitions on groundwater pumping in the area.

These specific long-term stewardship recommendations will also be summarized in the Rocky Flats *Long Term Stewardship Strategy*. No engineered controls, environmental monitoring, or physical controls (e.g., fences) are recommended as a result of the conditions remaining at IHSS 900-140.

IHSS 900-140 will be evaluated as part of the Site-Wide Comprehensive Risk Assessment, which is part of the RCRA Facility Investigation/Remedial Investigation (RFI/RI) and Corrective Measures Study/Feasibility Study (CMS/FS) that will be conducted for the Site. The need for and extent of long-term stewardship activities will be reanalyzed in RFI/RI and CMS/FS and will be proposed, as appropriate, as part of the preferred alternative in the Proposed Plan for the Site. Institutional controls and other long-term stewardship requirements for Rocky Flats will ultimately be contained in the Corrective Action Decision/Record of Decision, in any post-closure Colorado Hazardous Waste Act permit that may be required, and in any post-RFCA agreement.

### **NFAA Summary**

IHSS 900-140 is proposed for NFAA. The Subsurface Soil Risk Screen and ALs in RFCA Attachment 5 (DOE et al 2003) have been applied to the characterization data for this IHSS. The risk screen shows no potential adverse risk to a wildlife refuge worker or

ecological receptor. Plutonium is present in the surface soil at concentrations that exceed the WRW AL. However, this contaminated soil will be addressed by the 903 Lip Area and Americium Zone Interim Measure/Interim Remedial Action. The IHSS does not appear to be a source for the groundwater contamination in the area, and the existing contamination will be addressed by the Groundwater Plumes Interim Measure/Interim Remedial Action. Lastly, only one subsurface soil sample had an analyte concentration (lead) that exceeded the Ecological Receptor soil AL, and the concentration was near background and the AL, and below PRGs for burrowing animals. Therefore, it is concluded through application of the Subsurface Soil Risk Screen that no further accelerated action is required at IHSS 900-140.

#### References

- DOE, 1993, *Background Geochemical Characterization Report*, Golden, CO, September.
- DOE, 1995a. *Phase II RFI/RI Report, 903 pad, Mound, and East Trenches Area, Operable Unit No. 2*, RF/ER-95-0079.UN, Rev. 0, Rocky Flats Environmental Technology Site.
- DOE, 1995b. *Geochemical Characterization of Background Surface Soils: Background Soils Characterization Program*, Golden, CO, May.
- DOE, 2002 *2001 Annual RFCA Groundwater Monitoring Report*, November 2002.
- DOE, CDPHE, EPA, 2003, Modifications to the Rocky Flats Cleanup Agreement Attachment, U.S. Department of Energy, Colorado Department of Public Health and Environment, and U.S. Environmental Protection Agency, Rocky Flats Environmental Technology Site, Golden, Colorado, June.
- DOW, 1967. *Industrial Hygiene Status Report*, DOW Chemical USA, January 9, 1967.
- DOW, 1968. *Industrial Hygiene Status Report*, DOW Chemical USA, July 11, 1968.
- DOW, 1969. *Industrial Hygiene Status Report*, DOW Chemical USA, April 9, 1969.
- DOW, 1974. *Environmental Inventory, A Historical Summation of Environmental Incidents Affecting Soils at or Near the U.S. AEC Rocky Flats Plant*, DOW Chemical USA, January 29, 1974.
- Kaiser-Hill, 2002. *Site Characterization Report for the 903 Drum Storage Area, 903 Lip Area, and Americium Zone*, Kaiser-Hill Company, L.L.C., June 26, 2000.

Table 1 Analytical Program Summary

Surface Soil						Subsurface Soil					
Metals	Radionuclides	VOCs	SVOCs	Pesticides	PCBs	Metals	Radionuclides	VOCs	SVOCs	Pesticides	PCBs
PT029A	90402	SED038	SED038	SED038	SED038	0171	0171	0171	07491	07491	07491
PT029A	BH93498		SS200193	SS200193	SS200193	0271	0271	0271	07591	07591	07591
SED038	BH97498					07491	07491	07491	07691	07691	07691
SS200193	FOV669					07591	07591	07591	09591	09591	09591
	PT029					07691	07691	07691	09691	09691	09691
	SED038					09591	09591	09591	09791	09791	09791
						09691	09691	09691	13595		
						09791	09791	09791	13695		
						13595	13595	13595	13795		
						13695	13695	13695	13895		
						13795	13795	13795			
						13895	13895	13895			
							90402	21293			
							BH93498	22093			
							BH97498				



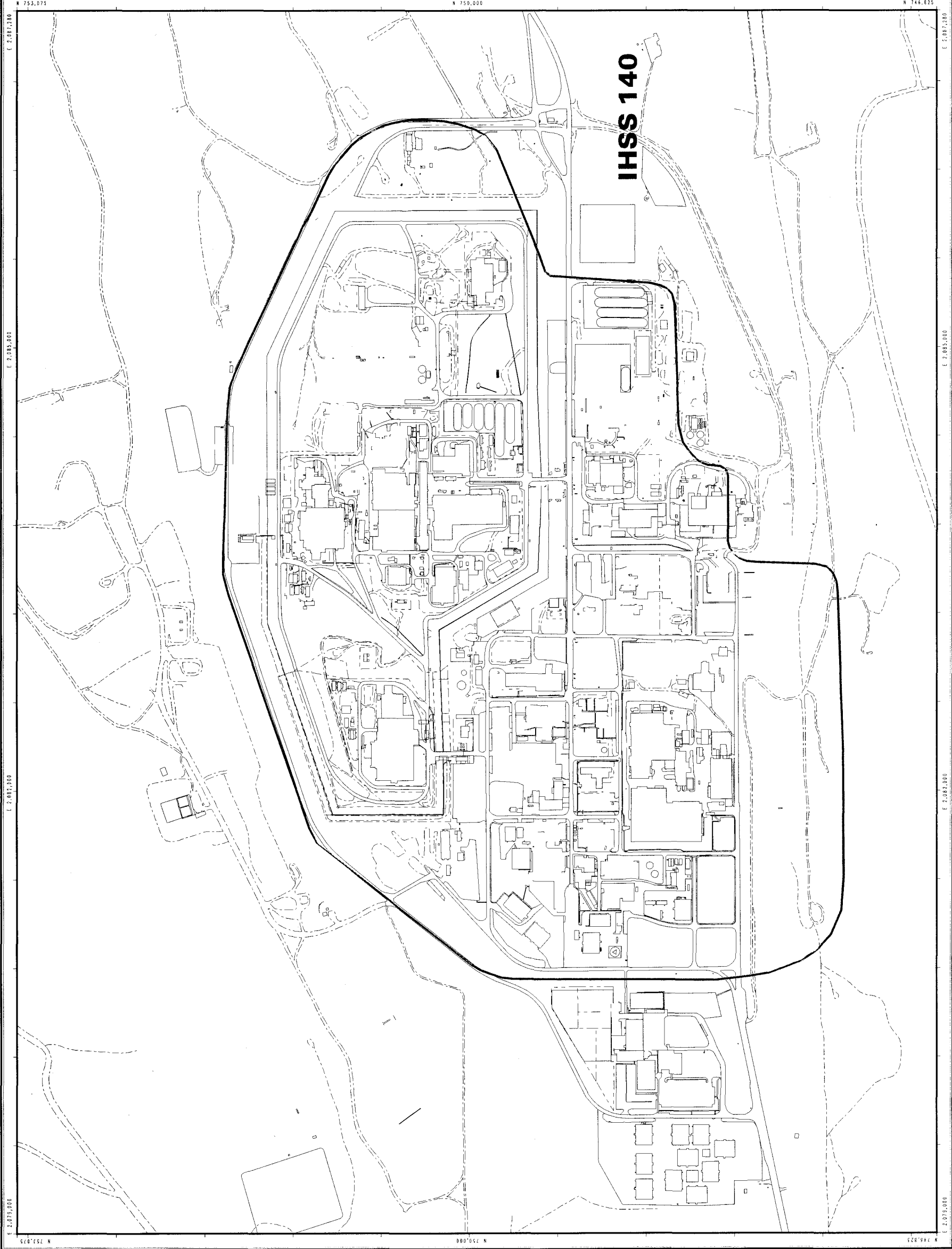
Table 2 Surface Soil Contamination Summary

Analyte Group	Analyte	Total Number Samples Analyzed	Detection Frequency	Average Concentration	Maximum Concentration	Background Mean Plus 2SD	Wildlife Refuge Worker Action Level	Ecological Receptor Action Level	Unit
Metal	Aluminum	3	33.3%	11720.00	17900.0	16902.00	228000	-	mg/kg
Metal	Aluminum, Total	1	0.0%	16600.00	16600.0	16902.00	228000	-	mg/kg
Metal	Barium	4	50.0%	144.25	193.0	141.26	26400	-	mg/kg
Metal	Chromium	4	50.0%	17.15	26.0	16.99	268	-	mg/kg
Metal	Iron	4	25.0%	16600.00	20400.0	18037.00	307000	-	mg/kg
Metal	Lithium	3	66.7%	17.50	22.8	11.55	20400	-	mg/kg
Metal	Manganese	4	25.0%	340.75	424.0	365.08	3480	-	mg/kg
Metal	Molybdenum	3	33.3%	4.67	5.2	0.00	5110	-	mg/kg
Metal	Nickel	4	75.0%	15.53	17.6	14.91	20400	-	mg/kg
Metal	Strontium	3	33.3%	46.83	52.5	48.94	613000	-	mg/kg
Metal	Tin	3	66.7%	23.77	38.7	2.90	613000	-	mg/kg
Metal	Zinc	4	50.0%	66.98	89.3	73.76	307000	-	mg/kg
Radionuclide	Americium-241	10	90.0%	51.23	160.0	0.02	76	1900	pci/g
Radionuclide	Plutonium-239/240	10	90.0%	343.99	950.0	0.07	50	3800	pci/g
Radionuclide	Uranium-235	9	11.1%	0.04	0.1	0.09	8	1900	pci/g
VOC	2-Butanone	1	100.0%	19.00	19.0	-	192000000	433000	ug/kg
VOC	Acetone	1	100.0%	71.00	71.0	-	102000000	211000	ug/kg
VOC	Methylene chloride	1	100.0%	14.00	14.0	-	2530000	39500	ug/kg
SVOC	Benzo(a)anthracene	2	50.0%	350.00	540.0	-	34900	800000	ug/kg
SVOC	Benzo(a)pyrene	2	50.0%	350.00	540.0	-	3490	25700	ug/kg
SVOC	Benzo(b)fluoranthene	2	50.0%	390.00	540.0	-	34900	1010000	ug/kg
SVOC	Benzo(k)fluoranthene	2	50.0%	304.50	540.0	-	349000	1010000	ug/kg
SVOC	Benzoic Acid	2	50.0%	1435.00	2700.0	-	1000000000	-	ug/kg
SVOC	bis(2-Ethylhexyl)phthalate	2	100.0%	955.00	1400.0	-	1970000	-	ug/kg
SVOC	Chrysene	2	50.0%	370.00	540.0	-	3490000	-	ug/kg
SVOC	Di-n-butylphthalate	2	100.0%	532.50	1000.0	-	73700000	-	ug/kg

Analyte Group	Analyte	Total Number Sample Analyzed	Detection Frequency	Average Concentration	Maximum Concentration	Background Mean Plus 2SD	Wildlife Refuge Worker Action Level	Ecological Receptor Action Level	Unit
SVOC	Di-n-octylphthalate	2	50.0%	305.00	400.0	-	14700000	-	ug/kg
SVOC	Fluoranthene	2	100.0%	230.00	390.0	-	27200000	-	ug/kg
SVOC	Pyrene	2	100.0%	218.50	350.0	-	22100000	-	ug/kg
PCB	Aroclor-1254	2	50.0%	137.00	190.0	-	12400	371000	ug/kg
Above the Wildlife Refuge Worker or Ecological Receptor Action Level									









Table 3 Subsurface Soil Contamination Summary

Analyte Group	Analyte	Total Number Samples Analyzed	Detection Frequency	Average Concentration	Maximum Concentration	Background Mean Plus 2SD	Wildlife Refuge Worker Action Level	Ecological Receptor Action Level	Unit
Metal	Barium	22	4.5%	138.18	337.00	141.26	26400	-	mg/kg
Metal	Lead	21	4.8%	13.45	25.80	54.62	1000	26	mg/kg
Metal	Nickel	22	4.5%	76.17	1330.00	14.91	20400	-	mg/kg
Metal	Uranium, Total	87	19.5%	1.57	44.55	5.98	2750	68	mg/kg
Radionuclide	Americium-241	29	24.1%	0.32	5.88	0.02	76	1900	pci/g
Radionuclide	Plutonium-239/240	29	41.4%	1.52	25.57	0.07	50	3800	pci/g
Radionuclide	Uranium-234	29	6.9%	2.90	55.00	2.25	300	1800	pci/g
Radionuclide	Uranium-235	29	13.8%	0.13	2.10	0.09	8	1900	pci/g
Radionuclide	Uranium-238	29	13.8%	1.57	15.00	2.00	351	1600	pci/g
VOC	1,2-Dichloroethene (total)	30	3.3%	7.63	24.00	-	9200000	-	ug/kg
VOC	Acetone	38	50.0%	67.21	1100.00	-	102000000	211000	ug/kg
VOC	Carbon Tetrachloride	38	10.5%	8.26	49.00	-	81500	83200	ug/kg
VOC	Chloroform	38	23.7%	7.76	52.00	-	19200	101000	ug/kg
VOC	Methylene chloride	38	44.7%	9.16	32.00	-	2530000	39500	ug/kg
VOC	Tetrachloroethene	38	10.5%	7.32	24.00	-	615000	37500	ug/kg
VOC	Toluene	38	36.8%	37.18	360.00	-	31300000	128000	ug/kg
VOC	Trichloroethene	38	23.7%	9.11	44.00	-	19600	509000	ug/kg
VOC	Xylene	38	5.3%	6.47	13.00	-	2040000	-	ug/kg
SVOC	bis(2-Ethylhexyl)phthalate	20	30.0%	332.20	420.00	-	1970000	-	ug/kg
SVOC	Butylbenzylphthalate	20	20.0%	327.65	420.00	-	147000000	-	ug/kg
SVOC	Di-n-butylphthalate	20	5.0%	375.20	420.00	-	73700000	-	ug/kg
SVOC	Phenol	20	40.0%	467.50	1100.00	-	613000000	-	ug/kg
Above the Wildlife Refuge Worker or Ecological Receptor Action Level									

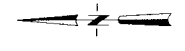


**Figure 1**  
**IHSS 140 Location**

**EXPLANATION**

-  IHSS 140
- Standard Map Features**
-  Buildings and other structures
-  Lakes and ponds
-  Streams, ditches, or other drainage features
-  Fences and other barriers
-  Paved roads
-  Dirt roads
-  Industrial Area Operable Unit Boundary

DATA SOURCE BASE FEATURES:  
PACs  
Historical Aerial Photographs (HAP)  
Sept. 30, 1997  
Industrial Hazardous Substance Sites (IHSS)  
Industrial Hazardous Substance Sites (IHSS)  
Industrial Hazardous Substance Sites (IHSS)  
Buildings, fences, hydrography, roads and other  
structures from 1994 aerial flyover data  
Digitized from the orthophotograph, 1995



Scale = 1 : 8060  
1 inch represents approximately 672 feet



State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD27

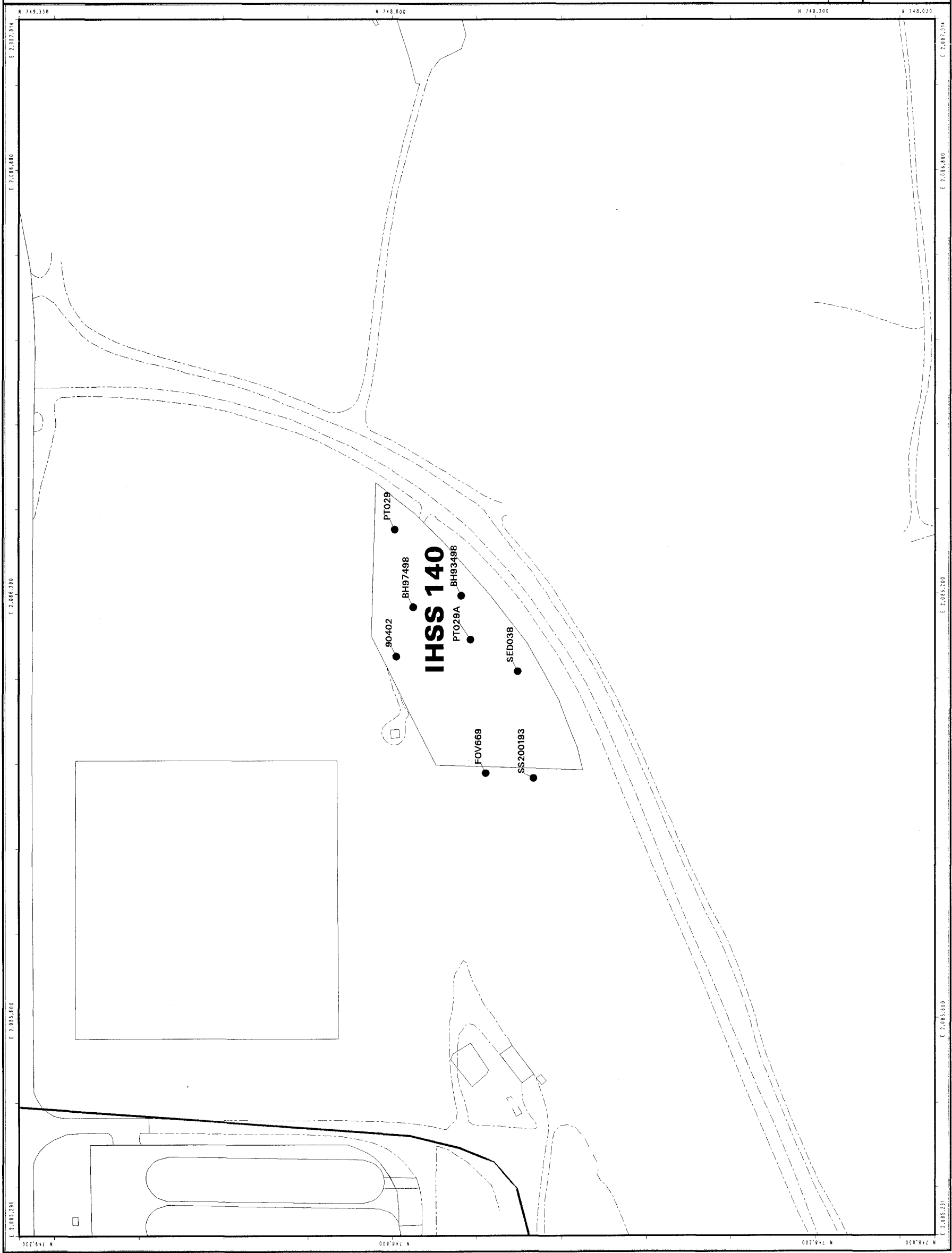
U.S. Department of Energy  
Rocky Flats Environmental Technology Site

GIS Dept. 303-986-7707



September 17, 2003

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**Figure 2**  
**IHSS 140 Surface Soil**  
**Sampling Locations**

**EXPLANATION**

- IHSS 140
- Sample Location
- Standard Map Features**
  - Buildings and other structures
  - Lakes and ponds
  - Streams, ditches, or other drainage features
  - Fences and other barriers
  - Paved roads
  - Dirt roads
  - Industrial Area Operable Unit Boundary

**DATA SOURCE BASE FEATURES:**  
Topographic  
Historical Release Report (HRR)  
2nd Annual Update  
DOE, 1992, HRR Report and Subsequent Updates  
DOE, 1992, HRR Report and Subsequent Updates  
Buildings, fences, hydrography, roads, and other features were digitized from aerial photography captured by FGS, Inc., Las Vegas.  
Digitized from the orthophotograph, 1995

Scale = 1 : 1680  
1 inch represents 140 feet



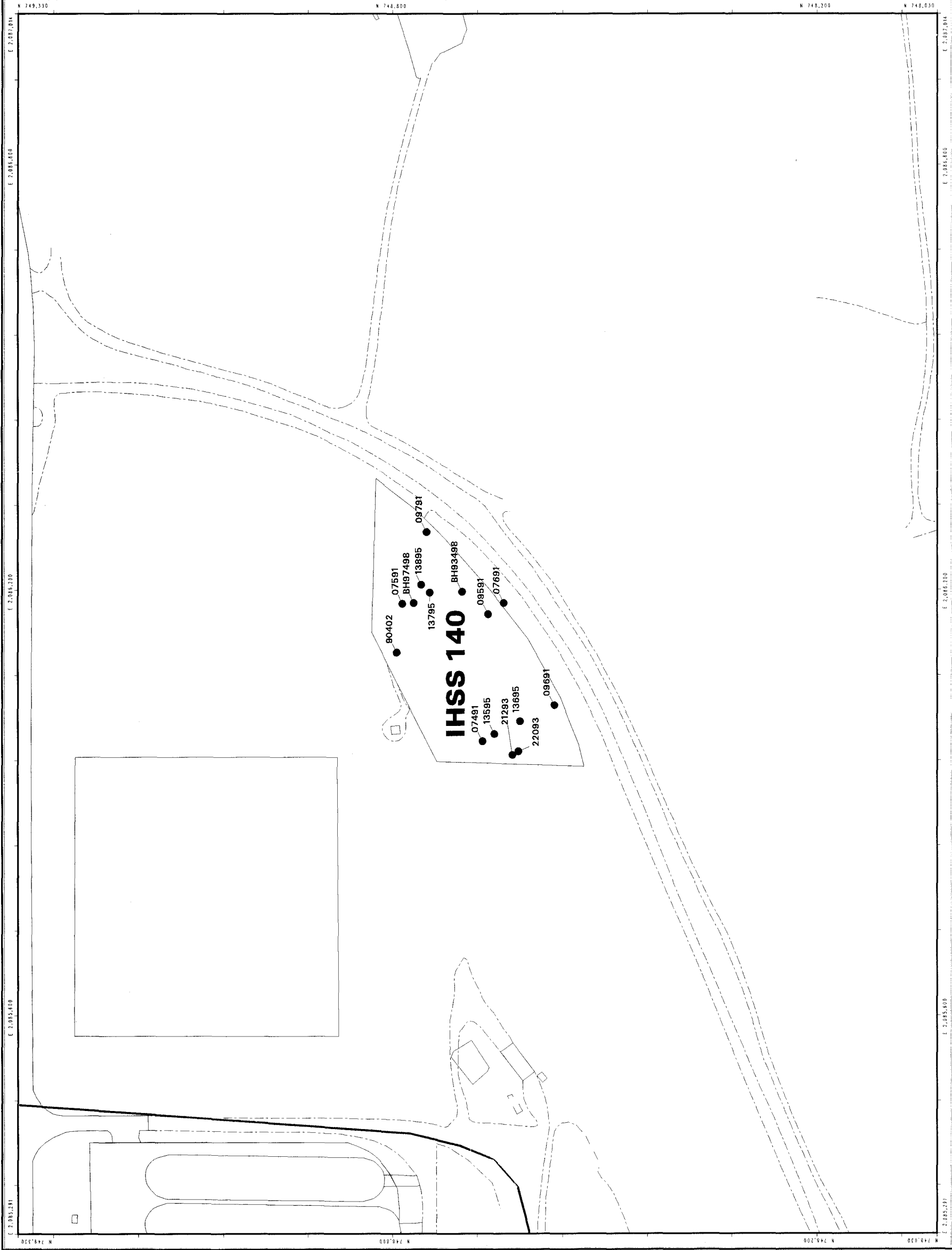
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Rocky Flats Environmental Technology Site

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November 06, 2003

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**Figure 3**  
**IHSS 140 Subsurface Soil**  
**Sampling Locations**

**EXPLANATION**

- IHSS 140
- Sample Location

**Standard Map Features**

- Buildings and other structures
- Lakes and ponds
- Streams, ditches, or other drainage features
- Fences and other barriers
- Paved roads
- Dirt roads
- Industrial Area Operable Unit Boundary

DATA SOURCE BASE FEATURES:  
 1995  
 Historical Release Report (HRR)  
 2nd Annual Update  
 1995  
 1995  
 Industrial Hazardous Substance Site (IHSS)  
 DOE, 1992, HRR Report and Subsequent Updates  
 Buildings, fences, hydrologic roads and other  
 features were digitized from aerial photos  
 captured by ERM RSL, Inc. in 1995.  
 Digitized from the orthophotograph, 1995



Scale = 1 : 1680  
 1 inch represents 140 feet



State Plane Coordinate Projection  
 Colorado Central Zone  
 Datum: NAD27

**U.S. Department of Energy**  
**Rocky Flats Environmental Technology Site**

GIS Dept. 303-966-7707

November 05, 2003

Figure 4  
IHSS 140 Surface Soil  
Contaminant Distribution

EXPLANATION  
IHSS 140

Sample Location

Standard Map Features

Buildings and other structures

Lakes and ponds

Streams, ditches, or other  
drainage features

Fences and other barriers

Paved roads

Dirt roads

Industrial Area Operable Unit  
Boundary

DATA SOURCE BASE FEATURES:  
Topographic Map  
Historical Release Report (HRR)  
2nd Annual Update  
Individual Hazardous Substances Site (IHSS)  
DOE, 1992, HRR Report and Subsequent Updates  
Bridges, fences, topography, roads, and other  
features were digitized from the aerial photograph  
acquired by E&C R&L, Inc., Las Vegas,  
Nevada, from the orthophotograph, 1996



Scale = 1 : 1680  
1 inch represents 140 feet



State Plane Coordinates Projection  
Colorado Central Zone  
Datum: NAD27

U.S. Department of Energy  
Rocky Flats Environmental Technology Site

GIS Dept. 303-965-7707

November 06, 2003

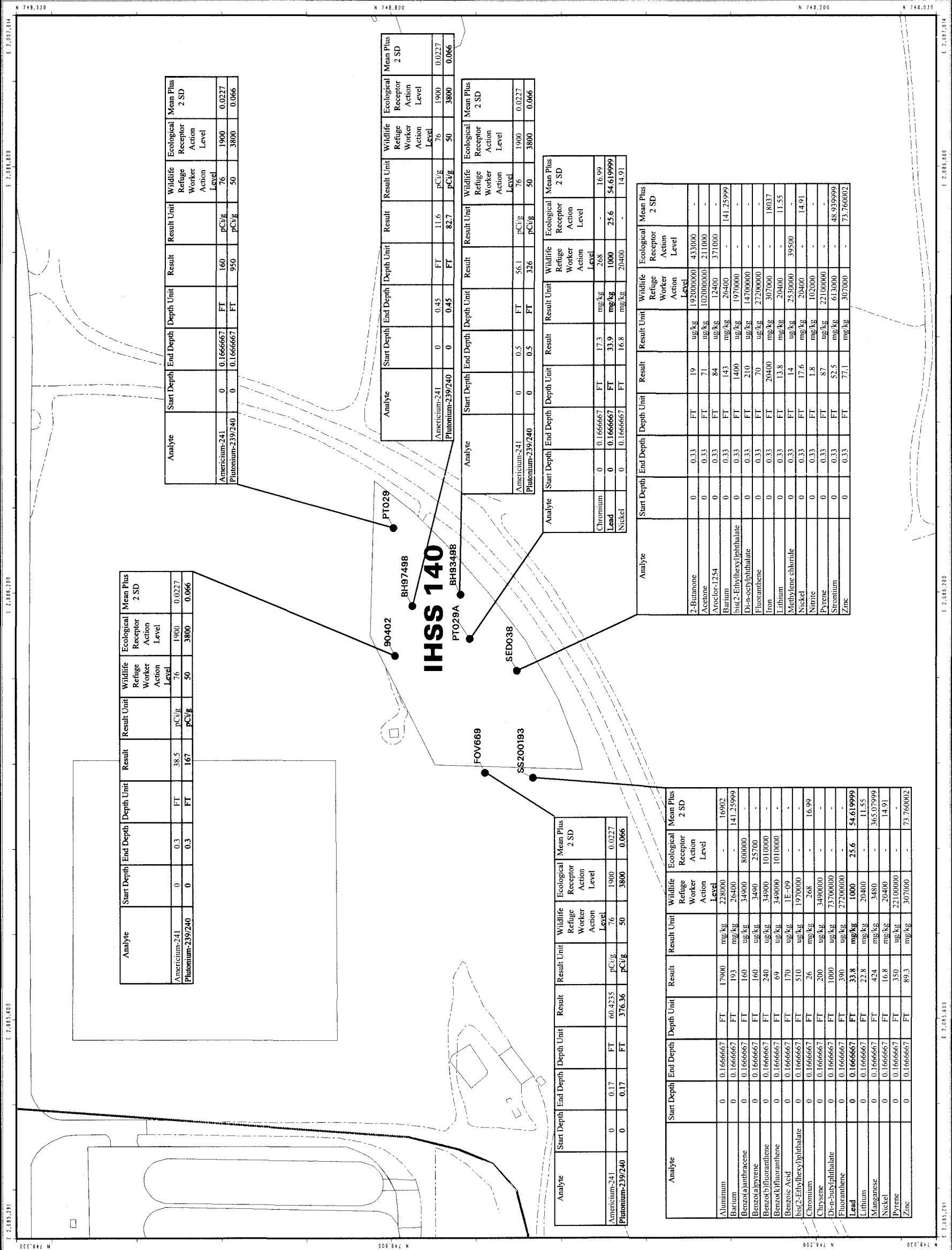


Figure 5  
IHSS 140 Subsurface Soil  
Contaminant Distribution

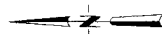
EXPLANATION

- IHSS 140
- Sample Location

Standard Map Features

- Building and other structures
- Lakes and ponds
- Stream, ditches, or other drainage features
- Fences and other barriers
- Paved roads
- Dirt roads
- Industrial Area Operable Unit Boundary

DATA SOURCE BASE FEATURES:  
Technical Release Report (HRR)  
2nd Annual Update  
Individual Hazardous Substance Site (IHSS)  
DOE, 1992, HRR Report and Subsequent Updates  
Buildings, fences, drainage features, and other features are shown as they appear in the aerial photograph, 1995  
Digitized from the aerial photograph, 1995



Scale = 1 : 1680  
1 inch represents 140 feet



State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD27

U.S. Department of Energy  
Rocky Flats Environmental Technology Site

GIS Dept. 303-866-7707

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